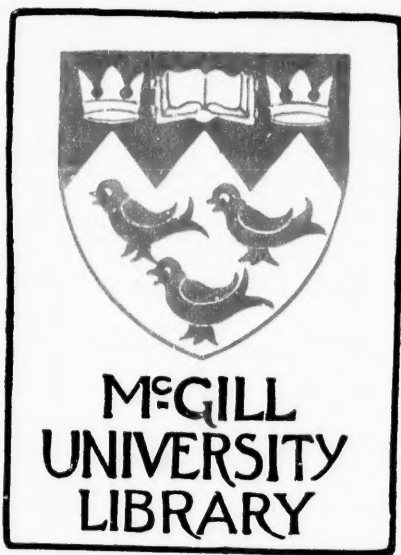


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ON THE SEQUENCE OF STRATA FORMING THE QUEBEC
GROUP OF LOGAN AND BILLINGS, WITH REMARKS
ON THE FOSSIL REMAINS FOUND THEREIN.

By Henry M. Ami, M.A., F.G.S., &c., of the Geological Survey.

*(Presented to the Royal Society of Canada by Dr. G. M. Dawson,
F.R.S. &c., May, 1891.)*

(ABSTRACT.)

AMI, HENRI MARC
On the sequence...

Canadian Pamphlet
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ON THE SEQUENCE OF STRATA FORMING THE QUEBEC
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(Abstract.)

The paper dealt with the Geological facts and grounds upon which the Quebec group rested and made it a necessary term in the geological nomenclature of strata in North America, but especially in the Province of Quebec.

The grounds, upon which the separation of the various terranes constituting this natural group was based, as well as the faunal and physical relations of its different members, were pointed out, showing the validity of the existence of such a series of fossiliferous sedimentary strata as that which Sir William Logan had recognized and Mr. Billings so clearly demonstrated early in the "sixties."

The removal of the so-called Hudson River black graptolitic series of shales, etc., which are met with at Quebec City, at the west end of the Island of Orleans, along the Marsouin River, and at many other places in the Province of Quebec—at Norman's Kiln, in the State of New York, and in Penobscot County, Maine, and other places in the United States—from an uppermost position in the Ordovician System—immediately above the Utica, or just below the base of the Silurian System—was absolutely necessary in the light of facts whether palæontological or stratigraphical or in the light of other physical reasons.

The characteristics of this so-called "Hudson River" series of rocks, when studied in the field as well as in closer detail, point clearly to its intimate relation and association with the "Levis" of Sir William Logan's Quebec group. The *Levis* and the *Quebec* formations or terranes along with the *Sillery*, form a group of terranes geologically and geographically closely related, which can be divided and sub-divided

in many instances into definite zones or horizons and smaller subdivisions, all of which were deposited under peculiar conditions such as characterised the lower half of the Ordovician (Cambro-Silurian) Epoch in geology.

It will thus appear that the rocks constituting the *Quebec terrane* (which term has been used and is being adopted by many American geologists as a proper one with which to designate these so-called "Hudson River" rocks) form part and parcel of the original "Quebec Group" of Logan.

The paper went on to refer to the faunas entombed in each of these three divisions, care being taken to exclude from the list of characteristic species—such forms as were not found *in situ* or from the rocks proper of each series—whether from loose pieces or from conglomerates or conglomerate like bands, in order that the possibilities of error in correlation as well as in palaeontological or faunal differentiation might be lessened in the problem which like the present one affords such diversity of relations and complicated terms.

The paper is, in fact, a sequel to the writer's contribution read before the Geological Society of America at Washington, last December and published since. (See *Bulletin of the Geological Society of America*, Vol. II., pp. 477-502, plate 20, 1891.) Whilst the latter dealt more particularly with the region about Quebec City—the present one referred to the relations and characteristics of the Quebec Group of Logan and Billings throughout the whole extent of the Province of Quebec and contiguous districts, upon which to base the proofs for the validity and actual existence of such a group or series of terranes in that portion of North America. The equivalency of the term "Canadian Period," or "Canadian Epoch," as used by Prof. James D. Dana and others, is also adduced as further evidence, corroborative of the magnificent work performed by Sir William Logan in elucidating the complex structure of the Province of Quebec—which work with the exception of Sir William Dawson, in several papers and reports—found scarcely any advocate, whilst its factors are based upon principles and data which are as durable as the rocks from which they proceed or with which they are related.

Terranes.

ORDOVICIAN SYSTEM.	Upper	1. HUDSON RIVER,	(= LORRAINE.)	<i>Terranes.</i> { Quebec. Levis. Sillery.
		2. UTICA,	} TRENTON GROUP.	
		3. TRENTON,		
		4. BLACK RIVER,		
	Lower	5. CHAZY,	} QUEBEC GROUP.	
		6. CALCIFEROUS,		

The above table is given to indicate the relations of the various members of the Ordovician (Cambro-Silurian) System in Canada showing the position of the "*Quebec Terrane*" in the lower half of the system instead of being classed or grouped along with the Hudson River (= Lorraine) terrane at the very top of the system as formerly. The exact relations, stratigraphical and palaeontological, which exist between the Quebec, Levis and Sillery terranes have yet to be defined. Their sequence and order in the scale of time require further investigations before this interesting fact can be ascertained on which Sir Wm. Logan and Mr. Billings were still actively engaged when called away.